Space Weather Forecast

Issued on Saturday, 01 April 2023 at 12:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of both Minor Radio Blackouts and Minor Geomagnetic Storms easing today.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with generally only occasional small Common-class flares recorded. The peak flare of the period was a higher Common-class flare at 31/2057UTC, which looks to have originated over the southwestern limb, perhaps aided by a fairly simultaneous flare by the relatively unassuming small region on the southwest of the disc. No Earth directed Coronal Mass Ejections (CMEs) have been detected in available imagery.

Solar Wind / Geomagnetic Activity: he solar wind was characterised by the fast wind associated with coronal hole 88. Solar wind speeds were Slightly Elevated to Elevated. The Interplanetary magnetic field was weak, with fluctuations between positively and negatively weak. The result of the above solar wind measures was for Quiet to Unsettled (Kp 0-3) geomagnetic activity, with one Active interval (Kp 4) at 31/2100-01/0000 UTC.

Energetic Particles / Solar Radiation: High energy proton enhancement (greater than 10MeV) has been at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity has been Low over the past 24 hours, with Several common class flares observed, the largest of which was a upper common class flare at 31/2057 UTC. There are currently four numbered and three unnumbered sunspot regions on the disc. All appear to be small and simple with very little magnetic complexity.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs are expected, though there are up to three CMEs presenting a very slight chance of glancing blows at Earth on 2nd April.

Earth appears to still be in lingering effects of coronal hole 88, with speeds still at Elevated levels. Solar winds should ease through the period, likely becoming slightly elevated or slow/ambient by 2nd April. There remains an outside chance of solar winds briefly increasing on 2nd April due to glancing CME impacts. Solar wind speeds then expected to rise to Elevated or perhaps briefly Strong upon the arrival of the fast wind of coronal hole 90 late on day 3 or day 4 (3rd or 4th).

Quiet to Unsettled geomagnetic activity is expected days 1 and 2 (1st and 2nd), with a chance of Active intervals and a slight chance of G1/Minor Storm intervals due to lingering coronal hole high speed stream and subsequent possible CME glancing blows. From late day 3 until day 4 (3rd & 4th), Unsettled to Active geomagnetic activity is most likely, with a chance of G1/Minor storming due to the arrival of the high speed stream of coronal hole 90.

Energetic Particles / Solar Radiation: No solar radiation storms are expected through the period.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	20	30	40
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	10	5	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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